Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A system for measuring strain experienced by a structure, said system comprising:

a) a sensor including:

i) a body having an electromagnetic cavity, said electromagnetic cavity adapted to produce a response signal in response to an interrogation signal, the interrogation signal wirelessly received by the sensor, said body being coupled to said structure to allow said strain to alter the resonance properties of said electromagnetic cavity thereby altering said response signal; and,

ii) a coupler coupled to said body, said coupler adapted to transfer said interrogation signal into said electromagnetic cavity and transfer said response signal out of said electromagnetic cavity; and,

b) an interrogator being adapted to generate and wirelessly transmit said interrogation signal to said sensor, said interrogator being further adapted to wirelessly receive said response signal.

Claim 2 (previously presented): The system of claim 1, wherein said electromagnetic cavity contains a dielectric.

Claim 3 (previously presented): The system of claim 1, wherein said body is a dielectric body.

Claim 4 (previously presented): The system of claim 1, wherein said electromagnetic cavity is rectangular.

Claim 5 (previously presented): The system of claim 1, wherein said electromagnetic cavity is cubic.

Claim 6 (previously presented): The system of claim 1, wherein said electromagnetic cavity is cylindrical.

Claim 7 (previously presented): The system of claim 1, wherein said sensor further comprises a mechanical amplifier coupled to said electromagnetic cavity, said mechanical amplifier being adapted to amplify the magnitude of said strain on said electromagnetic cavity.

Claim 8 (original): The system of claim 7, wherein said mechanical amplifier comprises a first member having a first region with a first length and a second member having a second region with a second length, said second region being coupled to said first region, wherein said first region is exposed to said strain and said second region is coupled to said electromagnetic cavity, wherein the magnitude of said strain experienced by said electromagnetic cavity is amplified by a factor equal to the ratio of said second length to said first length.

Claim 9 (original): The system of claim 1, wherein said interrogator comprises:

a) an antenna for transmitting said interrogation signal and receiving said response signal; and,

b) a signal generator coupled to said antenna, said signal generator being adapted to generate said interrogation signal.

Claim 10 (original): The system of claim 9, wherein said interrogator further comprises a detection module coupled to said antenna, said detection module being adapted to process said response signal to determine a value indicative of said strain.

Claim 11 (original): The system of claim 10, wherein said interrogator further comprises:

a) an output module coupled to said control module, said output module being adapted to provide an output indicative of said strain; and,

b) a control module coupled to said signal generator, said detection module and said output module for controlling the operation thereof.

Claim 12 (original): The system of claim 11, wherein said interrogator further comprises:

a) a memory module in communication with said signal generator, said detection module and said control module, said memory module being adapted to store information related to previously determined strains; and,

b) an input module in communication with said control module, said input module being adapted to allow a user to operate said interrogator.

Claim 13 (previously presented): The system of claim 10, wherein said interrogation signal is a continuous narrowband signal having a center frequency that is varied in a sweep range that includes a resonant frequency of said electromagnetic cavity and said detection module is adapted to detect a minimum in said response signal at a frequency within said sweep range, wherein said minimum occurs at said resonant frequency.

Claim 14 (previously presented): The system of claim 10, wherein said interrogation signal is a broadband signal having a frequency content that includes a resonant frequency of said electromagnetic cavity, and said detection module is adapted to detect a minimum in said response signal wherein said minimum occurs at said resonant frequency.

Claim 15 (previously presented): The system of claim 10, wherein said interrogation signal is a modulated narrowband signal having a center frequency that is varied in a sweep range that includes a resonant frequency of said electromagnetic cavity and said

detection module is adapted to detect a peak in said response signal at a frequency within said sweep range, wherein said peak occurs at said resonant frequency.

Claim 16 (previously presented): The system of claim 10, wherein said interrogation signal is a modulated broadband signal having a frequency content that includes a resonant frequency of said electromagnetic cavity, and said detection module is adapted to detect a peak in said response signal wherein said peak occurs at said resonant frequency.

Claim 17 (currently amended): A sensor for measuring strain experienced by a structure, said sensor comprising:

a) a body having an electromagnetic cavity for producing a response signal in response to an interrogation signal, the interrogation signal wirelessly received by the sensor, said body being coupled to said structure to allow said strain to alter the resonance properties of said electromagnetic cavity thereby altering said response signal; and,

b) a coupler coupled to said sensor, said coupler adapted to transfer said interrogation signal into said electromagnetic cavity and transfer said response signal out of said electromagnetic cavity so that the response signal can be wirelessly received by an interrogator.

Claim 18 (previously presented): The sensor of claim 17, wherein said electromagnetic cavity contains a dielectric.

Claim 19 (previously presented): The sensor of claim 17, wherein said said body is a dielectric body.

Claim 20 (previously presented): The sensor of claim 17, wherein said electromagnetic cavity is rectangular.

Claim 21 (previously presented): The sensor of claim 17, wherein said electromagnetic cavity is cubic.

Claim 22 (previously presented): The sensor of claim 17, wherein said electromagnetic cavity is a cylindrical cavity.

Claim 23 (previously presented): The sensor of claim 17, wherein said sensor further comprises a mechanical amplifier coupled to said electromagnetic cavity, said mechanical amplifier being adapted to amplify the magnitude of said strain on said electromagnetic cavity.

Claim 24 (original): The sensor of claim 23, wherein said mechanical amplifier comprises a first member having a first region with a first length and a second member having a second region with a second length, said second region being coupled to said first region, wherein said first region is exposed to said strain and said second region is coupled to said electromagnetic cavity, wherein the magnitude of said strain experienced by said electromagnetic cavity is amplified by a factor equal to the ratio of said second length to said first length.

Claim 25 (currently amended): A method for measuring strain experienced by a structure, said method comprising:

a) coupling a sensor to the structure, the sensor having an electromagnetic cavity;

b) transferring through a coupler an interrogation signal into said electromagnetic cavity to evoke a response signal, the interrogation signal wirelessly received by the sensor; and,

c) transferring through the same or a different coupler said response signal out of said electromagnetic cavity, so that the response signal can be wirelessly received by an interrogator.

Claim 26 (original): The method of claim 25, wherein said method further comprises processing said response signal to determine said strain.

Claim 27 (previously presented): The method of claim 25, said method further comprising:

d) amplifying said strain in a mechanical fashion to amplify the magnitude of said strain experienced by said electromagnetic cavity.

Claim 28 (previously presented): The method of claim 25, wherein step b) comprises:

e) providing said interrogation signal as a continuous narrowband signal; and,

f) sweeping the center frequency of said narrowband signal in a sweep range that includes a resonant frequency of said electromagnetic cavity.

Claim 29 (previously presented): The method of claim 28, wherein step c) comprises processing said response signal to detect a minimum at a frequency within said sweep range indicative of the resonant frequency of said electromagnetic cavity.

Claim 30 (previously presented): The method of claim 25, wherein step b) comprises:

a) providing said response signal as a continuous broadband signal having a frequency content that includes a resonant frequency of said electromagnetic cavity.

Claim 31 (previously presented): The method of claim 30, wherein step c) comprises processing said response signal to detect a notch at a frequency indicative of the resonant frequency of said electromagnetic cavity.

Claim 32 (previously presented): The method of claim 25, wherein step b) comprises:

e) modulating said interrogation signal to provide an intermittent narrowband signal; and,

f) sweeping the frequency of said intermittent narrowband signal in a sweep range that includes a resonant frequency of said electromagnetic cavity.

Claim 33 (previously presented): The method of claim 32, wherein step c) comprises processing said response signal to detect a peak at a frequency within said sweep range indicative of the resonant frequency of said electromagnetic cavity.

Claim 34 (previously presented): The method of claim 25, wherein step b) comprises:

a) modulating said interrogation signal to provide an intermittent broadband signal having a frequency content that includes a resonant frequency of said electromagnetic cavity.

Claim 35 (previously presented): The method of claim 34, wherein step c) comprises processing said response signal to detect a peak at a frequency indicative of the resonant frequency of said electromagnetic cavity.